

**SPECIFICATIONS FOR  
ASBESTOS-CONTAINING MATERIALS**

**AT**

**SUNY PURCHASE COLLEGE  
BEECHWOOD RESIDENCE  
3031 PURCHASE STREET  
PURCHASE, NEW YORK 10577**

**FOR**

**SUNY PURCHASE COLLEGE  
735 ANDERSON HILL ROAD  
PURCHASE, NEW YORK 10577**

**PREPARED BY**

**CUNO ENVIRONMENTAL CORPORATION  
6C FRANKLIN COURT  
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## SECTION 02080

### ASBESTOS REMOVAL

#### PART 1 GENERAL

##### 1.01 SCOPE OF WORK

- A. This asbestos abatement Project will consist of the removal and disposal of asbestos containing materials at SUNY PURCHASE COLLEGE, **BEECHWOOD RESIDENCE**. See section 1.02 "SPECIAL JOB CONDITIONS" in this specification.
- B. The work includes but is not limited to the removal and disposal of asbestos containing involving insulation on all **Pipe Insulation in the Basement, Paper behind radiator on first floor and FLOOR TILES in various locations on second floor.** All work shall be performed in accordance with NYSDOL Industrial Code Rule 56, herein referenced as "Section 56- or Subpart 56-", and federal and local regulations. Except to the extent that more explicit or more stringent requirements are written directly into the contract documents, all applicable codes, regulations, guidelines and standards have the same force and effect (and are made a part of the contract documents by reference) as if copied directly into the contract documents, or as if published copies are bound herewith. The Contractor shall have on site throughout the duration of the project, a current copy of Title 12, NYCRR Part 56.
- C. The Contractor shall be aware of all conditions of the Project and is responsible for verifying quantities and locations of all Work to be performed. Failure to do so shall not relieve the Contractor of its obligation to furnish all labor and materials necessary to perform the Work.
- D. All Work shall be performed in strict accordance with the Project Documents and governing codes, rules, and regulations. Where conflicts occur between the Project Documents and applicable codes, rules, and regulations, the more stringent shall apply.
- E. The Contractor shall be required to perform asbestos abatement in stages in accordance with the Contract Drawings and the Approved Staging Plans. The Contractor shall provide temporary protection and security to prevent water penetration, theft and burglary into the premises of the facilities.
- F. The Contractor will perform all work as described in this specification and as necessary to remove these materials, while maintaining the integrity of the work area.
- G. The Contractor shall take all necessary precautions to support all electrical, mechanical and other fixtures, which are present in the work areas. All equipment and fixtures shall remain intact and be decontaminated and or encapsulated.
- H. The Contractor shall provide a licensed electrician to make all connections. All temporary electrical work shall be protected against water damage. A licensed electrician shall shut down and lock out all electrical power in the work area prior to any abatement activities. All electric shall be returned to its original condition at the conclusion of the project.
- I. The Contractor is responsible for all necessary plumbing connections. All plumbing equipment shall be returned to their original condition at the conclusion of the project.

- J. The Contractor shall be responsible for arranging and paying for 24-hour security on the job site as required by the Owner. Padlocks should be used to lock entrances to any or all abatement related work areas.
- K. Unless otherwise stated all removal work shall be down to the substrate. Use of solvent or mastic removers may be necessary to achieve complete removal.
- L. The Owner shall provide abatement Project air sampling and analysis as required by applicable regulations of New York State ICR 56.

## 1.02 SPECIAL JOB CONDITIONS

- A. The scope of this project includes asbestos abatement in the Beechwood Residence Basement involving insulation on all pipes, First floor –Reception area involving ACM Paper behind the radiators, 9” x9” floor tiles and 12” x 12” floor tiles in various locations on second floor.. Excluded are the Pipes in the crawl spaces. The Contractor is responsible to isolate and protect these areas unless directed to include these areas in the abatement contract.
- B. All work in this area shall be performed in accordance with NYS DOL ICR 56. The Contractor is responsible to verify quantities and conditions that will affect his work.
- C. All prospective bidders may visit the premises before submitting bid to allow vendors to assess the quantity, accessibility, location and its layout, and other relevant aspects of the job so that critical conditions that may be crucial to the work and cost estimates **could be anticipated**, as no contingencies may be permitted for lack of knowledge of existing conditions which can be reasonably observed.
- D. Electric power and hot and cold water are available on site for abatement work but it will be the contractor's responsibility to facilitate connections for their requirement.
- E. All personnel and professional services that the contractor employs must be licensed/certified for the nature of assigned work, i.e., asbestos handler, waste transporter, etc., as required by state and federal regulations. Contractor and its subcontractors must pay its employees at least the prevailing wage rate and pay or provide the prevailing supplements, including the premium rates for overtime pay.
- F. Contractor shall assign sufficient manpower, materials and equipment to complete the work within the agreed period of time. Work-related activities are to be confined within the boundaries of the protective barrier or designated area. Storage of equipment and supplies will not be permitted in other parts of the building and contractor shall maintain good housekeeping at all times. The adjoining areas and the remainder of the building will continue to be occupied and utilized for normal business and activities, and unnecessary disturbance such as loud music and conversations, flooding and dust conditions should be avoided.

## 1.03 PERMITS AND COMPLIANCE

- A. The Contractor shall assume full responsibility and liability for compliance with all applicable Federal, State, and local laws, rules, and regulations pertaining to Work practices, protection of Workers, authorized visitors to the site, persons, and property adjacent to the Work.
- B. Perform asbestos related Work in accordance with New York State Industrial Code Rule 56, 40 CFR 61, and 29 CFR 1926, as specified herein. Where more stringent requirements are specified, adhere to the more stringent requirements.
- C. The Contractor must maintain current licenses pursuant to New York State Department of Labor and Department of Environmental Conservation for all Work related to this Project, including the removal, handling, transport, and disposal of asbestos containing materials.
- D. The Contractor must have and submit proof upon request that any persons employed by the Contractor to engage in or supervise Work on any asbestos Project have a valid NYS asbestos handling certificate pursuant to Industrial Code Rule 56.
- E. The Contractor shall comply fully with any variances secured from regulatory agencies by the Owner in the performance of the Work. Should the Contractor choose to apply for any variance, approval of the Owner is first required. In the event that the Contractor chooses to use two NYS Applicable Variances in the same Work Area simultaneously, the Contractor is responsible for complying with all conditions of each variance and any NYS DOL interpretations concerning the use of these variances together.
- F. It is the sole responsibility of the Contractor to determine what, if any, patents are applicable to the Project. The Contractor shall pay all royalties and/or license fees. He shall defend all suits or claims for infringement of any patent rights and save the Owner, Architect, Engineer, Environmental Consultant, and Construction Manager harmless from loss, including attorney's fees, on account thereof.
- G. Failure to adhere to the Project Documents shall constitute a breach of the Contract and the Owner shall have the right to and may terminate the Contract provided, however, the failure of the Owner to so terminate shall not relieve the Contractor from future compliance.

#### 1.04 SUBMITTALS

- A. Pre-contract Submittals: Within 3 days after bids are opened, the three apparent low bidders shall submit the following documentation. Failure to submit all required documentation truthfully or in a timely manner may be cause for rejection of the bid.
  - 1. Contractor license issued by New York State Department of Labor.
  - 2. A list of Projects performed within the past two (2) years and include the dollar value of all Projects. Provide Project references to include Owner, consultant, and air monitoring firm's name, contact persons, address, and phone number.
  - 3. Citations/Violations/Legal Proceedings: Submit a statement describing:
    - a. Any citations, violations, criminal charges, or legal proceedings undertaken or issued by any law enforcement, regulatory agency, or consultant concerning performance on previous abatement contracts. Briefly describe the circumstances citing the Project and involved persons and agencies as well as the outcome of any actions.
    - b. Any litigation or arbitration proceedings arising out of performance on past Projects.
  - 4. Preliminary Schedule: Provide an estimate of manpower to be utilized and the time required for completion of each major Work Area. Include estimated size and number of crews and Work shifts.
- B. Pre-Work Submittals: Within 7 days prior to the pre-construction conference, the Contractor shall submit 3 copies of the documents listed below:

1. Progress Schedule:
  - a. Show the complete sequence of abatement activities and the sequencing of Work within each building or building section.
  - b. Show the dates for the beginning and completion of each major element of Work including substantial completion dates for each Work Area, building, or phase.
  - c. Show Projected percentage of completion for each item, as of the first day of each month.
  - d. Show final inspection dates.
2. Notifications: As required by Federal, State, and local regulatory agencies together with proof of transmittal (i.e. certified mail return receipt).
3. Abatement Work Plan: Provide plans which clearly indicate the following:
  - a. All Work Areas/containments numbered sequentially.
  - b. Locations and types of all decontamination enclosures.
  - c. Entrances and exits to the Work Areas/containments.
  - d. Type of abatement activity/technique for each Work Area/containment.
  - e. Number and location of negative air units and exhaust. Also provide calculations for determining number of negative air pressure units.
  - f. Proposed location and construction of storage facilities and field office.
  - g. Location of water and electrical connections to building services.
- C. On-Site Submittals: Refer to Part 3.01.D for all submittals, documentation, and postings required to be maintained on-site during abatement activities.
- D. Project Close-out Submittals: Submit the following at the closeout of the Project:
  1. Originals of all waste disposal manifests, seals, and disposal logs.
  2. OSHA compliance air monitoring records conducted during the Work.
  3. Daily progress log.
  4. A list of all Workers used in the performance of the Project, including name, social security number, and NYS DOL certification number.
  5. Required Employee Statements including Medical Examination Statement, Worker's Acknowledgment Statement, Respirator Fit Test, and Employee Training Statement.

#### **1.05 PRE-CONSTRUCTION CONFERENCE**

- A. Prior to start of preparatory Work under this Contract, the Contractor shall attend a pre-construction conference attended by Owner, Facility Personnel, and Environmental Consultant.
- B. Agenda for this conference shall include but not necessarily be limited to:
  1. Contractor's scope of Work, Work plan, and schedule to include number of Workers and shifts.
  2. Contractor's safety and health precautions including protective clothing and equipment and decontamination procedures.
  3. Environmental Consultant's duties, functions, and authority.
  4. Contractor's Work procedures including:
    - a. Methods of job site preparation and removal methods.
    - b. Respiratory protection.
    - c. Disposal procedures.
    - d. Cleanup procedures.
    - e. Fire exits and emergency procedures.
  5. Contractor's required pre-work and on-site submittals, documentation, and postings.

6. Contractor's plan for twenty-four (24) hour Project security both for prevention of theft and for barring entry of unauthorized personnel into Work Areas.
  7. Temporary utilities.
  8. Handling of furniture and other moveable objects.
  9. Storage of removed asbestos containing materials.
  10. Waste disposal requirements and procedures, including use of the Owner supplied waste manifest and container seals.
- C. In conjunction with the conference the Contractor shall accompany the Owner and Environmental Consultant on a pre-construction walk-through documenting existing condition of finishes and furnishings, reviewing overall Work plan, location of fire exits, fire protection equipment, water supply and temporary electric tie-in.

## 1.06 APPLICABLE STANDARDS AND REGULATIONS

- A. The Contractor shall comply with the following codes and standards, except where more stringent requirements are shown or specified:
- B. Federal Regulations:
1. 29 CFR 1910.1001, "Asbestos" (OSHA)
  2. 29 CFR 1910.1200, "Hazard Communication" (OSHA)
  3. 29 CFR 1910.134, "Respiratory Protection" (OSHA)
  4. 29 CFR 1910.145, "Specification for Accident Prevention Signs and Tags" (OSHA)
  5. 29 CFR 1926, "Construction Industry" (OSHA)
  6. 29 CFR 1926.1101, "Asbestos, Tremolite, Anthophyllite, and Actinolite" (OSHA)
  7. 29 CFR 1926.500 "Guardrails, Handrails and Covers" (OSHA)
  8. 40 CFR 61, Subpart A, "General Provisions" (EPA)
  9. 40 CFR 61, Subpart M, "National Emission Standard for Asbestos" (EPA)
  10. 49 CFR 171-172, Transportation Standards (DOT)
- C. New York State Regulations:
1. 12 NYCRR, Part 56, "Asbestos", Industrial Code Rule 56 (DOL)
  2. 6 NYCRR, Parts 360, 364, Disposal and Transportation (DEC)
  3. 10 NYCRR, Part 73, "Asbestos Safety Program Requirements" (DOH)
- D. Local Regulations:  
City of Purchase Asbestos Regulation if there is an existing regulation, Storage and Disposal .
- E. Standards and Guidance Documents:
1. American National Standard Institute (ANSI) Z88.2-80, Practices for Respiratory Protection
  2. ANSI Z9.2-79, Fundamentals Governing the Design and Operation of Local Exhaust Systems
  3. EPA 560/585-024, Guidance for Controlling Asbestos Containing Materials in Buildings (Purple Book)
  4. EPA 530-SW-85-007, Asbestos Waste Management Guidance

## 1.07 NOTICES

- A. The Contractor shall provide notification of intent to commence asbestos abatement activities as indicated below.
1. At least ten (10) Working days prior to beginning abatement activities, send written notification to:



U.S. Environmental Protection Agency  
National Emissions Standards for Hazardous Air Pollutants (NESHAPS) Coordinator  
26 Federal Plaza  
New York, NY 10007.

2. At least ten (10) days prior to beginning abatement activities, send written notification to:  
New York State Department of Labor  
Division of Safety and Health, Asbestos Control Program.  
State Office Campus  
Building 12 - Room 454  
Albany, NY 12240

- B. The Contractor is required to send notifications to regulatory agencies via mail or package delivery service that will provide proof of delivery and receipt.
- C. The Contractor shall post and/or provide Building Occupant Notification at least 10 days prior to beginning abatement activities as required by NYS Industrial Code Rule 56. The posting shall include the following information:
  1. The locations of the abatement Project.
  2. The amounts and types of asbestos containing materials being abated.
  3. The commencement and completion dates of the Project.
  4. The name, address, and asbestos license number of the abatement Contractor.
  5. The name, address, and asbestos license number of the Environmental Consultant and laboratory.

#### **1.08 PROJECT MONITORING AND AIR SAMPLING**

- A. The Owner shall engage the services of an Environmental Consultant (the Consultant) who shall serve as the Owner's Representative in regard to the performance of the asbestos abatement Project and provide direction as required throughout the entire abatement period. The Consultants responsibilities will be that of Project Monitor as defined in ICR 56 not a safety officer. The Contractor is responsible for all OSHA and safety issues and shall provide a site safety officer as necessary to ensure a safe work environment and operations.
- B. The Contractor is required to ensure cooperation of its personnel with the Consultant for the air sampling and Project monitoring functions described below.
- C. The Consultant shall provide the following administrative services:
  1. Review and approve or disapprove all submittals, shop drawings, schedules, and samples.
  2. Assure that all notifications to governmental agencies by the Contractor are submitted in a timely manner and are correct in content.
  3. Review and approve the Contractor's OSHA compliance testing laboratory.
- D. The Consultant shall staff the Project with a trained and certified person(s) to act on the Owner's behalf at the job site. This individual shall be designated as the Abatement Project Monitor (APM).
  1. The APM shall be on-site at all times the Contractor is on-site. The Contractor shall not be permitted to conduct any Work unless the APM is on-site.

2. The APM shall have the authority to direct the actions of the Contractor verbally and in writing. The APM shall have the authority to Stop Work when gross Work practice deficiencies or when ambient fiber concentrations outside the removal area exceed .01 f/cc or background level.
  - a. Such Stop Work order shall be effective immediately and remain in effect until corrective measures have been taken and the situation has been corrected.
  - b. Standby time required to resolve the situation shall be at the Contractor's expense.
  
- E. The Consultant shall provide abatement Project air sampling and analysis as required by applicable regulations of New York State ICR 56. Sampling will include background, pre-abatement, during-abatement, and PCM clearance sampling.

#### **1.09 CONTRACTOR AIR SAMPLING**

- A. In addition to the requirements of OSHA 1926.1101, the Contractor shall be required to perform personal air monitoring every Work shift in each Work Area during which abatement activities occur in order to determine that appropriate respiratory protection is being utilized.
  
- B. The Contractor shall conduct air sampling that is representative of both the 8-hour time weighted average and 30-minute short-term exposures to indicate compliance with the permissible exposure and excursion limits.
  
- C. The Contractor's laboratory analysis of air samples shall be conducted by an NYS DOH ELAP approved laboratory, subject to approval of the Environmental Consultant.
  
- D. Results of personnel air sample analyses shall be available, verbally, within twenty-four (24) hours of sampling and shall be posted upon receipt. Written laboratory reports shall be delivered and posted at the Work site within five (5) days.

#### **1.10 PROJECT SUPERVISOR**

- A. The Contractor shall designate a full-time Project Supervisor who shall meet the following qualifications:
  1. The Project Supervisor shall hold New York State certification as an Asbestos Supervisor.
  2. The Project Supervisor shall meet the requirements of a "Competent Person" as defined by OSHA 1926.1101 and shall have a minimum of one year experience as a supervisor.
  3. The Project Supervisor must be able to read and write English fluently, as well as communicate in the primary language of the Workers.

- B. If the Project Supervisor is not on-site at any time whatsoever, all Work shall be stopped. The Project Supervisor shall remain on-site until the Project is complete. The Project Supervisor cannot be removed from the Project without the written consent of the Owner and the Environmental Consultant. The Project Supervisor shall be removed from the Project if so requested by the Owner.
- C. The Project Supervisor shall maintain the Project Log Book required by New York State Department of Labor ICR 56 56-7.3 and section 2.03 of the specifications and the Waste Disposal Log required by section 4.04 of the specifications.
- D. The Project Supervisor shall be responsible for the performance of the Work and shall represent the Contractor in all respects at the Project site. The Supervisor shall be the primary point of contact for the Asbestos Project Monitor.

### **1.11 MEDICAL REQUIREMENTS**

- A. Before exposure to airborne asbestos fibers, provide Workers with a comprehensive medical examination as required by 29 CFR 1910.1001, and 29 CFR 1926.1101.
  - 1. This examination is not required if adequate records show the employee has been examined as required by 29 CFR 1910.1001, and 29 CFR 1926.1101 within the past year.
  - 2. The same medical examination shall be given on an annual basis to employees engaged in an occupation involving asbestos fibers and within thirty (30) calendar days before or after the termination of employment in such occupations.
- B. As required by 29 CFR 1910.1001, and 29 CFR 1926.1101 maintain complete and accurate records of employees' medical examinations for a period of thirty (30) years after termination of employment and make records of the required medical examinations available for inspection and copying to: The Assistant Secretary of Labor for Occupational Safety and Health, the Director of the National Institute for Occupational Safety and Health (NIOSH), authorized representatives of either of them, and an employees physician upon the request of the employee or former employee.
- C. The Contractor shall furnish the Owner evidence of its firm's medical surveillance program required under 29 CFR 1910.1001, and 29 CFR 1926.1101.

### **1.12 TRAINING**

- A. As required by applicable regulations, prior to assignment to asbestos Work instruct each employee with regard to the hazards of asbestos, safety and health precautions, and the use and requirements of protective clothing and equipment.
- B. Establish a respirator program as required by ANSI Z88.2 and 29 CFR 1910.134, and 29 CFR 1926.1101. Provide respirator training and fit-testing.

### **1.13 RESPIRATORY PROTECTION**

- A. Select respirators from those approved by the Mine Safety and Health Administration (MSHA), and the National Institute for Occupational Safety and Health (NIOSH), Department of Health and Human Services.
- B. Respirators shall be individually fit-tested to personnel under the direction of an Industrial Hygienist on a yearly basis. Fit-tested respirators shall be permanently marked to identify the individual fitted, and use shall be limited to that individual. Fit-test records shall be maintained on site for each employee.
- C. Where fiber levels permit, and in compliance with regulatory requirements, Powered Air Purifying Respirators (PAPR) are the minimum allowable respiratory protection permitted to be utilized during gross removal operations.
- D. No respirators shall be issued to personnel without such personnel participating in a respirator training program.
- E. High Efficiency Particulate Air (HEPA) respirator filters shall be approved by NIOSH and shall conform to the OSHA requirements in 29 CFR 1910.134 and 29 CFR 1926.1101.
- F. A storage area for respirators shall be provided by the Contractor in the clean room side of the personnel decontamination enclosure where they will be kept in a clean environment.
- G. The Contractor shall provide and make available a sufficient quantity of respirator filters so that filter changes can be made as necessary during the Work day. Filters will be removed and discarded during the decontamination process. Filters cannot be reused. Filters must be changed if breathing becomes difficult.
- H. Filters used with negative pressure air purifying respirators shall not be used any longer than one eight (8) hour Work day.
- I. Any authorized visitor, Worker, or supervisor found in the Work Area not wearing the required respiratory protection shall be removed from the Project site and not be permitted to return.
- J. The Contractor shall have at least two (2) Powered Air Purifying Respirators stored on site designated for authorized visitors use. Appropriate respirator filters for authorized visitors shall be made available by the Contractor.

#### **1.14 DELIVERY AND STORAGE**

- A. Deliver all materials to the job site in original packages with containers bearing manufacturer's name and label.
- B. Store all materials at the job site in a suitable and designated area.
  - 1. Store materials subject to deterioration or damage away from wet or damp surfaces and under cover.
  - 2. Protect materials from unintended contamination.

- C. Remove damaged or deteriorated materials from the job site. Materials contaminated with asbestos shall be disposed of as asbestos debris as herein specified.

### **1.15 TEMPORARY UTILITIES**

- A. Shut down and lock out all electrical power to the asbestos Work Areas.
- B. Provide temporary 120-280 volt, single phase, three wire, 100 amp electric service with Ground Fault Circuit Interrupters (GFCI) for all electric requirements within the asbestos Work Area.
  - 1. Where available, obtain from Owner's existing system. Otherwise provide power from other sources (i.e. generator).
  - 2. Provide temporary wiring and "weatherproof" receptacles in sufficient quantity and location to serve all HEPA equipment and tools.
  - 3. Provide wiring and receptacles as required by the Environmental Consultant for air sampling equipment.
  - 4. All power to the Work Area shall be brought in from outside the area through GFCI's at the source.
- C. Provide temporary lighting with "weatherproof" fixtures for all Work Areas including decontamination chambers.
  - 1. The entire Work Area shall be kept illuminated at all times.
  - 2. Provide lighting as required by the Environmental Consultant for the purposes of performing required inspections.
- D. All temporary devices and wiring used in the Work Area shall be capable of decontamination procedures including HEPA vacuuming and wet-wiping.
- E. Utilize domestic water service, if available, from Owner's existing system. Provide hot water heaters with sufficient capacity to meet Project demands.

## **PART 2 PRODUCTS**

### **2.01 PROTECTIVE CLOTHING**

- A. Provide personnel utilized during the Project with disposable protective whole body clothing, headcoverings, gloves and foot coverings. Provide disposable plastic or rubber gloves to protect hands. Cloth gloves may be worn inside the plastic or rubber for comfort, but shall not be used alone. Make sleeves secure at the wrists and make foot coverings secure at the ankles by the use of tape, or provide disposable coverings with elastic wrists or tops.
- B. Provide sufficient quantities of protective clothing to assure a minimum of four (4) complete disposable outfits per day for each individual performing abatement Work.
- C. Eye protection and hard hats shall be provided and made available for all personnel entering any Work Area.
- D. Authorized visitors shall be provided with suitable protective clothing, headgear, eye protection, and footwear whenever they enter the Work Area.

## 2.02 SIGNS AND LABELS

- A. Provide warning signs and barrier tapes at all approaches to asbestos Work Areas. Locate signs at such distance that personnel may read the sign and take the necessary protective steps required before entering the area.
1. Provide danger signs in vertical format conforming to 29 CFR 1926.1101, minimum 20" x 14" displaying the following legend.

DANGER  
ASBESTOS CANCER AND LUNG DISEASE  
HAZARD  
AUTHORIZED PERSONNEL ONLY  
RESPIRATORS AND PROTECTIVE CLOTHING  
ARE REQUIRED IN THIS AREA

2. Provide 3" wide yellow barrier tape printed with black lettered, "DANGER ASBESTOS REMOVAL". Locate barrier tape across all corridors, entrances and access routes to asbestos Work Area. Install tape 3' to 4' AFF.

- B. Provide asbestos danger labels affixed to all asbestos materials, scrap, waste, debris and other products contaminated with asbestos.
1. Provide asbestos danger labels of sufficient size to be clearly legible, displaying the following legend:

DANGER  
CONTAINS ASBESTOS FIBERS  
AVOID CREATING DUST  
CANCER AND LUNG DISEASE HAZARD

2. Provide the following asbestos labels, of sufficient size to be clearly legible, for display on waste containers (bags or drums) which will be used to transport asbestos contaminated material in accordance with United States Department of Transportation 49 CFR Parts 171 and 172:

RQ HAZARDOUS  
SUBSTANCE  
SOLID, NOS  
ORM-E, NA 9188  
ASBESTOS

3. Generator identification information shall be affixed to each waste container indicating the following printed in indelible ink:  
Generator Name:  
Facility Name:  
Facility Address:

### **2.03 PROJECT LOG BOOK**

- A. Provide a permanently bound Project log book. Log book shall contain on title page the Project name, name, address and phone number of Owner; name, address and phone number of Environmental Consultant; name, address and phone number of Abatement Contractor; emergency numbers including, but not limited to local Fire/Rescue department.
- B. All entries into the log shall be made in non-washable, permanent ink and such pen shall be strung to or otherwise attached to the log to prevent removal from the log-in area. Under no circumstances shall pencil entries be permitted.
- C. All persons entering and exiting the Work Area shall sign the log and include name, social security number, and time.
- D. The Project Supervisor shall document all Work performed daily and note all inspections required by NYS Industrial Code Rule 56 56-7.3 , i.e. , manometer readings, testing and inspection of barriers and enclosures.

### **2.04 SCAFFOLDING AND LADDERS**

- A. Provide all scaffolding and/or staging as necessary to accomplish the Work of this Contract. Scaffolding may be of suspension type or standing type such as metal tube and coupler, tubular welded frame, pole or outrigger type or cantilever type. The type, erection and use of all scaffolding and ladders shall comply with all applicable OSHA construction industry standards. The Contractor shall provide documentation of proper scaffolding construction and use by a NYS licensed Professional Engineer as well as provide a site safety officer as necessary to ensure the safe operations and use of scaffolding. It is the Contractor's sole responsibility for compliance and safety when utilizing scaffolding.
- B. Provide scaffolding and ladders as required by the Environmental Consultant for the purposes of performing required inspections.

### **2.05 SURFACTANT (AMENDED WATER)**

- A. Wet all asbestos-containing materials prior to removal with surfactant mixed and applied in accordance with manufacturer's printed instructions.
- B. Approved Manufacturer:
  - 1. International Protective Coatings Corp.: Serpiflex Shield
  - 2. American Coatings Corp.: EPA 55 Asbestos Removal Agent
  - 3. Certified Technologies: CerTane 2075 Penetrating Surfactant

## **2.06 ENCAPSULANT**

- A. Encapsulant shall be tinted or pigmented so that application when dry is readily discernible.
- B. Approved Manufacturer:
  - 1. International Protective Coatings Corp.: Serpiflex Shield
  - 2. American Coatings Corp.: FNE High Temperature Sealant
  - 3. Certified Technologies: CerTane 1000 Post Removal Encapsulant

## **2.07 DISPOSAL BAGS, DRUMS, AND CONTAINERS**

- A. Provide 6 mil polyethylene disposal bags printed with asbestos caution labels. Bags shall also be imprinted with U.S. Department of Transportation required markings.
- B. Provide 30 or 55 gallon capacity fiber or metal drums capable of being sealed air and water tight if asbestos waste has the potential to damage or puncture disposal bags. Affix asbestos caution labels on lids and at one-third points around drum circumference to assure ready identification.
- C. Containers and bags must be labeled with the names of the waste generator and the location at which the waste was generated in accordance with 40 CFR Part 61 NESHAPS.
- D. Labeled ACM waste containers or bags shall not be used for non-ACM waste or trash. Any material placed in labeled containers or bags, whether turned inside out or not shall be handled and disposed of as ACM waste.

## **2.08 HEPA VACUUM EQUIPMENT**

- A. All dry vacuuming performed under this contract shall be performed with High Efficiency Particulate Absolute (HEPA) filter equipped industrial vacuums conforming to ANSI Z9.2.
- B. Provide tools and specialized equipment including scraping nozzles with integral vacuum hoods connected to a HEPA vacuum with flexible hose.
- C. Approved Manufacturers:
  - 1. Hako Minuteman
  - 2. Micro-Trap Inc.
  - 3. Control Resource Systems, Inc.

## **2.09 POWER TOOLS**

- A. Any power tools used to drill, cut into, or otherwise disturb asbestos material shall be equipped with HEPA filtered local exhaust ventilation.

## **2.10 POLYETHYLENE SHEETING**



- A. All polyethylene (plastic) sheeting used on the Project (including but not limited to sheeting used for critical and isolation barriers, fixed objects, walls, floors, ceilings, waste container) shall be at least 6 mil fire retardant sheeting.
- B. Decontamination enclosure systems shall utilize at least 6 mil opaque fire retardant plastic sheeting. At least 2 layers of 6 mil reinforced fire retardant plastic sheeting shall be used for the flooring.

### **PART 3 EXECUTION**

#### **3.01 GENERAL REQUIREMENTS**

- A. Should the area beyond the Work Area(s) become contaminated with asbestos containing materials or elevated fiber levels, immediately stop Work and institute emergency procedures. Contaminated non-Work Areas shall be isolated and decontaminated in accordance with procedures established for asbestos removal. All costs incurred in decontaminating such non-Work Areas and the contents thereof shall be borne by the Contractor, at no additional cost to the Owner.
- B. Medical approval, fit test reports, Worker Acknowledgments, and NYS DOL certificates shall be on site prior to admittance of any Contractor's employees to the asbestos Work Area.
- C. Perform all asbestos removal Work using wet removal procedures. Mix and apply surfactant in accordance with manufacturer's written instructions. Dry removal procedures are not permitted.
- D. The following submittals, documentation, and postings shall be maintained on-site during abatement activities at a location approved by the Asbestos Project Monitor:
  - 1. Contractor license issued by New York State Department of Labor.
  - 2. Certification, Worker Training, Medical Surveillance, Acknowledgments :
    - a. New York State Asbestos Handler certification cards for each person employed in the removal, handling, or disturbance of asbestos.
    - b. Evidence that Workers have received proper training required by the regulations and the medical examinations required by OSHA 29 CFR 1926.1101.
    - c. Documentation that Workers have been fit tested specifically for respirators used on the Project.

- d. Worker's Acknowledgments: Statements signed by each employee that the employee has received training in the proper handling of asbestos containing materials; understands the health implications and risks involved; and understands the use and limitations of the respiratory equipment to be used.
  3. Daily OSHA personal air monitoring results.
  4. NYS Department of Health ELAP certification for the laboratory that will be analyzing the OSHA personnel air samples.
  5. NYS Department of Environmental Conservation Waste Transporter Permit.
  6. Project documents (specifications and drawings.)
  7. Notifications and variances (site specific and applicable.)
  8. Applicable regulations.
  9. Material Safety Data Sheets of supplies/chemicals used on the Project.
  10. Approved Abatement Work Plan.
  11. List of emergency telephone numbers.
  12. Waste Disposal Log
- E. The Work Area must be vacated by building occupants prior to decontamination enclosure construction and Work Area preparation.
- F. All demolition necessary to access asbestos containing materials for removal must be conducted within negative pressure enclosures by licensed asbestos handlers. Demolition debris may be disposed of as construction and demolition debris provided the Asbestos Project Monitor determines that it is not contaminated with asbestos. If the demolition debris is determined to be contaminated, it must be disposed of as asbestos waste.

### **3.02 ESTABLISHING EACH REGULATED ABATEMENT WORK AREA.**

- A. The regulated abatement work area shall be vacated by the occupants and non-certified personnel, prior to work area preparation, and shall remain vacated until satisfactory clearance air sampling results have been achieved or the asbestos project is complete.
- B. Entry to the regulated abatement work area shall be restricted to the asbestos contractors involved with the asbestos project, employees of the asbestos contractors, authorized visitors, and other public safety personnel. Police and fire officials may enter the work site and not be subject to this Part only on an emergency basis.
- C. Asbestos warning signs, required as per current OSHA regulations shall be posted to restrict access to the regulated abatement work area at all locations and approaches to a location where airborne concentrations of asbestos may exceed ambient background levels. During activities, signs shall be posted at locations such that persons may take the necessary protective measures to avoid potential exposure.

### **3.03 PERSONAL AND WASTE DECONTAMINATION SYSTEM ENCLOSURES**

- A. Personal decontamination system enclosures shall be constructed and functional prior to commencing the remainder of the regulated abatement work area preparation activities. Waste decontamination system enclosures shall be constructed and functional at the completion of preparation activities. After installation of the personal decontamination system enclosure, all access to the regulated abatement work area shall be via the installed personal decontamination system enclosure.

- B. A personal decontamination system enclosure shall be provided outside the regulated abatement work area and attached to all locations where personnel shall enter or exit the regulated abatement work area. One personal decontamination enclosure system for each regulated abatement work area shall be required. This system may utilize adequate existing lighting sources separate from the decontamination system enclosure, or shall be supplied with a GFCI protected temporary lighting system. The personal decontamination system enclosure shall be sized to accommodate the number of workers and equipment required for the intended purpose. Such system may consist of existing attached rooms outside of the regulated abatement work area, if the layout is appropriate, that can be plasticized and are accessible from the regulated abatement work area. When this situation does not exist, personal decontamination enclosure systems may be constructed of metal, wood or plastic supports covered with fire-retardant plastic sheeting. A minimum of one (1) layer of six (6) mil fire-retardant plastic sheeting shall be installed on the ceiling, and walls of the enclosure system. At least two (2) layers of six (6) mil fire-retardant reinforced plastic sheeting shall be used for flooring protection of this area. This system must be kept clean, sanitary and climate controlled at all times in conformance with all federal, state and local government requirements. This system shall remain on-site, operational and be used until completion of the asbestos project.
- C. The personal decontamination system enclosure shall consist of a clean room, a shower room and an equipment room connected in series but separated from each other by airlocks. There shall be a curtained doorway separation between the equipment room and the regulated abatement work area, and there shall be a lockable door to the outside. Minimum dimensions for each airlock, shower room and equipment room shall be three (3) feet wide by six (6) feet in height, to allow for adequate access to and from the regulated abatement work area.
- D. An assembly that consists of at least three (3) overlapping sheets of six (6) mil fire retardant plastic over an existing or temporarily framed doorway. One sheet shall be secured at the top and left side, the second sheet at the top and right side, and the third sheet at the top and left side. All sheets shall have weights attached to the bottom to insure that the sheets hang straight and maintain a seal over the doorway when not in use.
- E. Enclosures systems accessible to the public shall be fully framed, hard-wall sheathed and utilize a lockable door for safety and security.
- F. A plywood or oriented strand board (OSB) sheathing material of at least 3/8-inch thickness.
- G. Enclosure systems constructed at the work site shall use at least one (1) layer of six (6) mil fire-retardant plastic sheeting on walls and ceiling. At least two (2) layers of six (6) mil fire-retardant reinforced plastic sheeting shall be used for floor protection of this area.
- H. A completely watertight fiberglass or marine painted prefabricated unit does not require plasticizing. Rooms shall be configured as per paragraph (2) of this Section. All prefabricated or trailer decontamination units shall be kept in good condition, and shall be completely decontaminated after final cleaning and immediately prior to clearance air sampling. Upon receiving satisfactory clearance air results, the prefabricated units shall be sealed then separated from the regulated abatement work area and removed from the site.
- I. The clean room shall be sized to accommodate a full work-shift of asbestos abatement contractor personnel, as well as the air sampling technician and the project monitor. The clean room shall be a

minimum of six (6) feet in height. A minimum of thirty-two (32) square feet of floor space shall be provided for every six (6) full shift abatement workers, calculated on the basis of the largest work shift. If the largest work shift consists of three (3) or less full shift abatement workers, the minimum clean room size requirement is reduced to twenty-four (24) square feet of floor space. Benches, lockers and hooks shall be provided for street clothes. Shelves for storing respirators shall be provided. Clean clothing, replacement filters for respirators, towels and other necessary items shall be provided. The clean room shall not be used for storage of tools, equipment or materials. It shall not be used for office space. A lockable door shall be provided to permit access to the clean room from outside the

regulated abatement work area or enclosure and shall be used to secure the regulated abatement work area and decontamination enclosure during non-work hours.

- J. The shower room shall contain one (1) shower per every six (6) full shift abatement workers, calculated on the basis of the largest work shift. Multiple showers shall be simultaneously accessible (installed in parallel) to certified personnel. Each showerhead shall be supplied with hot and cold water adjustable at the tap. The shower enclosure shall be constructed to ensure against leakage of any kind. Uncontaminated soap, shampoo and towels shall be available at all times. Shower water shall be drained, collected and filtered through a system with at least 5.0-micron particle size collection capability. Submersible pumps shall be installed, maintained and utilized in accordance with pertinent OSHA regulations and manufacturer's recommendations. A multi-stage filtering system containing a series of several filters with progressively smaller pore sizes shall be used to avoid rapid clogging of

the filtering system by larger particles. Filtered wastewater shall be discharged in accordance with applicable codes. Contaminated filters shall be disposed of as asbestos contaminated waste.

- K. The equipment room shall be used for the storage of decontaminated equipment and tools. A one (1) day supply of replacement filters for HEPA-vacuums and negative pressure ventilation equipment in sealed containers, extra tools, containers of surfactant and other materials and equipment that may be required during the abatement project may also be stored here. A container lined with a labeled, at least six (6) mil plastic bag for collection of clothing shall be located in this room. Contaminated footwear and work clothes shall be stored in this area.
- L. Airlock construction shall consist of two (2) curtained doorways with three (3) alternating six (6) mil fire retardant polyethylene curtains per doorway, separated by a distance of at least three (3) feet, such that one passes through one doorway into the airlock, allowing the doorway sheeting to overlap and close off the opening before proceeding through the next doorway. Minimum airlock size shall be three (3) feet wide, by three (3) feet long, by six (6) feet in height.

### **3.04 REMOTE PERSONAL DECONTAMINATION SYSTEM ENCLOSURE.**

- A. If a personal decontamination system cannot be attached to the regulated abatement work area, due to available space restrictions or other building and fire code restrictions, a remote personal decontamination system enclosure may be used for limited Special Projects as per subpart 56-11, negative pressure tent enclosure work areas with glovebag only abatement, or if non-friable ACM is being removed in a manner which will not render the ACM friable.
- B. If it is found during Phase IIB, as defined by ICR 56, that the non-friable ACM or asbestos material will become friable during the removal process, and it is logistically possible to attach the decontamination system enclosure, abatement work must stop immediately while the remote personal decontamination system is relocated to be attached and contiguous to the regulated abatement work area.
- C. The following requirements apply for all remote personal decontamination systems:

- (1) **Protective Clothing.** Workers shall don two (2) sets of disposable protective clothing and a supply of protective clothing shall be kept in the airlocks attached to the regulated abatement work area.
  - (2) **Location.** The remote personal decontamination system shall be constructed as close to the regulated abatement work area as physically possible. If the remote personal decontamination system must be located at the exterior of the building/structure due to space or code restrictions, it shall be constructed within fifty (50) feet of the building/structure exit used for access by the asbestos abatement contractor personnel. The decontamination unit shall be cordoned off at a distance of twenty-five (25) feet to separate it from public areas.
- D. At a minimum, two (2) extra airlocks as defined in Section 56- 2.1 shall be constructed as per Section 56-7.5(b)(11). One shall be constructed at the entrance to the equipment room or equipment/washroom. The other extra airlock shall be constructed at the entrance to the containment or regulated abatement work area(s). These airlocks shall have lockable doorways at the entrance to the airlock from uncontaminated areas. These airlocks shall be cordoned off at a distance of twenty-five (25) feet and appropriately signed in accordance with Section 56-7.4(c). Airlocks shall not be used as a waste decontamination area and shall be kept clean and free of asbestos containing material.
- E. The walkway from the regulated abatement work area to the personal decontamination system or next regulated abatement work area shall be cordoned off and signage installed as per Section 56-7.4(c), to delineate it from public areas while in use during Phase IIA through IID.
- F. If at any time a worker must travel through an uncontaminated area to access the personal decontamination area, the worker shall HEPA-vacuum and/or wet wipe his/her outer protective clothing while in the regulated abatement work area, then proceed into the airlock, which serves as a changing area, where he/she shall remove the outer clothing and don a clean set of protective clothing.  
The worker may then proceed to the personal decontamination system enclosure only along a designated pathway as described above. Travel in any other area shall not be allowed.
- G. The remote personal decontamination unit shall be removed only after satisfactory clearance air sampling results have been achieved.

### 3.05 WASTE DECONTAMINATION SYSTEM ENCLOSURE .

- A. A waste decontamination system enclosure shall be provided outside the regulated abatement work area and shall be attached to the regulated abatement work area. One (1) waste decontamination enclosure for each regulated abatement work area shall be required. This system may utilize adequate existing lighting sources separate from the decontamination system enclosure, or shall be supplied with a GFCI protected temporary lighting system.
- B. The waste decontamination system enclosure shall be sized to accommodate the number of workers and equipment for the intended purpose. Such system may consist of existing attached rooms outside of the regulated abatement work area, if the layout is appropriate, that can be plasticized and are accessible from the regulated abatement work area. When this situation does not exist, enclosure systems may be constructed of metal, wood or plastic supports covered with fire-retardant plastic sheeting. A minimum of one (1) layer of six (6) mil fire-retardant plastic sheeting shall be installed on the ceiling, and walls of the enclosure system. At least two (2) layers of six (6) mil fire-retardant reinforced plastic sheeting shall be used for flooring protection of this area. This system must be kept clean, sanitary and climate

controlled at all times in conformance to all federal, state and local government requirements. This system shall remain and be used until completion of Phase II C of the asbestos project.

- C. A waste decontamination system enclosure shall consist of a washroom and a holding area connected in series but separated from each other by an airlock. There shall be a lockable door to the outside, and there shall be a curtained doorway between the washroom and the regulated abatement work area.
- D. An assembly which consists of at least three (3) overlapping sheets of six (6) mil fire retardant plastic over an existing or temporarily framed doorway. One (1) sheet shall be secured at the top and left side, the second sheet at the top and right side, and the third sheet at the top and left side. All sheets shall have weights attached to the bottom to insure that the sheets hang straight and maintain a seal over the doorway when not in use.
- E. A room/chamber between the regulated abatement work area and the holding area in the waste decontamination system enclosure, where equipment and waste containers are wet cleaned or HEPA vacuumed. Adequate drainage and bag/container wash water shall be provided within the room/chamber, as well as a sufficient quantity of clean waste bags/containers.
- F. Where there is only one (1) exit from the regulated abatement work area, the holding area of the waste decontamination system enclosure may branch off from the equipment room of the personal decontamination system enclosure. The equipment room will also be used as a waste washroom. (See Figure 3 in this Section)
- G. Waste decontamination system enclosures constructed at the work site shall use at least one (1) layer of six (6) mil fire-retardant plastic sheeting on walls and ceiling. At least two (2) layers of six (6) mil fire-retardant reinforced plastic sheeting shall be used for flooring protection of these areas.
- H. The waste decontamination system enclosure and regulated abatement work area airlock(s) (when remote decontamination systems are used) shall be constructed with lockable doors to prevent unauthorized entry. Enclosures systems located within twenty-five (25) feet of an area of public access shall be fully framed and hard-wall sheathed for safety.
- J. The waste washroom shall be equipped with a wash bin of sufficient size to perform waste container washing operations and shall have a submersible pump installed to collect waste water and deliver it to the shower wastewater filtration system where it shall be filtered in accordance with paragraph (b)(9) of this Section.

### **3.06 WASTE DECONTAMINATION SYSTEM ENCLOSURE – WHEN REMOTE PERSONAL IS ALLOWED.**

- A. When a remote personal decontamination system enclosure is allowed and utilized for a regulated abatement work area, the following requirements shall apply:
  - 1. Minor Size Regulated Abatement Work Area. No specific waste decontamination system enclosure is required for minor size regulated abatement work areas. The waste generated shall be immediately bagged/containerized within the regulated abatement work area.
  - 2. Small & Large Size Regulated Abatement Work Areas.

- a. **Washroom.** An additional chamber shall be constructed within the regulated abatement work area, attached to the existing airlock used to access the work area. The washroom/airlock combination shall be utilized as the contiguous waste decontamination enclosure for waste bagging/containerization and waste transfer activities. The washroom shall be constructed and supplied with equipment/materials consistent with waste decontamination system enclosure washroom requirements for contiguous personal and waste decontamination system enclosures.
- b. **Removal.** The washroom chamber shall be removed only after satisfactory clearance air sampling results have been achieved.

### 3.07 PERSONAL PROTECTIVE EQUIPMENT (PPE).

- A. After the installation of the personal decontamination system, full PPE in compliance with current OSHA regulations shall be worn in regulated abatement work areas during preparation activities, for all friable OSHA Class I or Class II asbestos projects. Asbestos abatement contractor's respirator selection, filter selection, medical surveillance and respiratory training must be consistent with current

OSHA regulations. Appropriate respiratory protection is also required of authorized visitors in accordance with this Part.

### 3.08 ELECTRIC POWER.

- A. Shutdown and lock out of electric power to all negative pressure containment enclosures within the regulated abatement work areas shall be required as per current applicable OSHA standards. All existing power to fixtures, lights, machinery and outlets within the enclosure must be shut down and locked out. The asbestos abatement contractor shall provide temporary power and lighting to the regulated abatement work area, and insure safe installation of temporary power sources and equipment used where high humidity or water shall be sprayed in accordance with all applicable codes. All temporary power to regulated abatement work areas shall be brought in from outside the regulated abatement work area. This temporary power shall be protected by a ground fault circuit interrupter (GFCI) before the entry point to the regulated abatement work area. The negative air equipment shall be on GFCI protected circuits separate from the remainder of the regulated abatement work area temporary power circuits. The GFCI temporary power connections shall be located outside of the regulated abatement work area, in a secure, dry area, which is accessible to the asbestos abatement contractor.
- B. **Electric Power Shutdown Exemption.** If electrical circuits, machinery and other electrical systems in or passing through the regulated abatement work area must stay in operation due to health and safety requirements, the following precautions must be taken:
  1. All unprotected cables (except low-voltage [less than 24 volts] communication and control system cables), panel boxes of cables and joints in live conduit that run through the regulated abatement work area shall be covered with three (3) independent layers of six (6) mil fire retardant polyethylene. Each layer shall be individually duct taped and sealed. All three (3)

layers of polyethylene sheeting shall be left in place until satisfactory clearance air sampling results have been obtained.

2. Any energized circuits remaining in the regulated abatement work areas shall be posted with a minimum of two (2) inch high lettering warning sign which reads: DANGER LIVE ELECTRICAL – KEEP CLEAR. The sign shall be placed on all live covered barriers at a maximum of ten (10) foot intervals. These signs shall be posted in sufficient numbers to warn all persons authorized to enter the regulated abatement work area of the existence of the energized circuits.

### 3.09 ENGINEERING CONTROLS.

- A. All OSHA Class I, Class III, and interior Class II asbestos abatement projects shall employ negative air pressure equipment ventilation.
- B. **Operation.** The negative air pressure equipment shall operate continuously, twenty-four (24) hours a day, from startup of negative air pressure equipment , through the cleanup operations and satisfactory clearance air sampling results being obtained, or the asbestos project is complete.
- C. **Timing of Installation.** The negative air ventilation units shall be installed and made operational after the critical barriers and isolation barriers are installed.
- D. **Negative Air Pressure.** A negative air pressure, relative to areas outside of the enclosure, shall be maintained at all times in the regulated abatement work area during the asbestos abatement project to ensure that contaminated air in the regulated abatement work area does not escape back to an uncontaminated area.
- E. **Manometer.** A manometer shall be used to document the pressure differential for all OSHA Class I Large and Small size asbestos project regulated abatement work areas. A minimum of -0.02 column inches of water pressure differential, relative to pressure outside the regulated abatement work area, shall be maintained within the regulated abatement work area, as evidenced by manometric measurements. Once installed, on a daily basis at least twice per workshift, the asbestos abatement contractor's supervisor shall document the manometer reading within the daily project log. The manometer shall be installed and made operational once the negative air has been established in the regulated abatement work area. Magnahelic manometers shall be at a minimum calibrated semi-annually, and a copy of the current calibration certification shall be posted at the work site during Phase II operations.
- F. **Ventilation Units.** If more than one (1) primary HEPA-filtered ventilation unit is installed, the units shall be turned on one (1) at a time and the integrity of temporary hardwall isolation barriers checked for secure attachment or the need for additional reinforcement shall be checked. A minimum of one (1) additional unit having a capacity of at least equal to that of the primary unit shall be installed, as a backup unit to be used upon primary unit failure, or if necessary during primary unit filter changes. Ventilation Unit exhaust ducting shall not exceed twenty-five (25) feet in length, due to reduction in volumetric flow rates caused by friction.



- G. Power Supply.** A GFCI protected temporary power supply shall be available to satisfy the requirements of the total of all ventilation units.
- H. Power Failure.** In the event of electric power supply failure, abatement shall stop immediately and shall not resume until power is restored and exhaust units are operating fully. In the event of extended power failure (longer than one hour), after evacuation of all persons from the regulated abatement work area, the decontamination system enclosure facilities shall be sealed airtight.
- I. Air Changes.** Negative air pressure ventilation equipment shall be installed and operated continuously to provide at least four (4) air changes in the regulated abatement work area every hour including during clearance air sampling.
- J. Openings in Enclosure.** Openings made in the enclosure system to accommodate these units shall be made airtight with duct tape or caulking or both. Where possible, the intake side of the negative air ventilation unit shall remain within the regulated abatement work area to permit filter changing, while minimizing equipment contamination and the likelihood of contamination of non-work areas.
- K. Installation and Care.** Proper installation procedures, including use of appropriate filters and manufacturer's recommended operating procedures shall be followed.
1. Negative pressure HEPA filtered ventilation units shall be exhausted to the outside of the building or structure and away from public access and to a controllable area.  
Air sampling at exhaust duct termination locations and daily inspections shall be conducted to insure that procedures are followed to maintain the negative pressure air ventilation filtration systems.
  2. Pre-filters, secondary filters and HEPA-filters shall be replaced when dirty.  
Ducts of at least equivalent shape and dimension as those of the negative pressure ventilation exhaust shall be used to exhaust to the outside of the building or structure.
  3. All fans, ducts and joints shall be sealed, braced and supported to maintain an airtight system.
  4. Once installed and operational, daily inspections shall be conducted to insure the airtight integrity of the system, and the findings shall be documented by the asbestos abatement contractor's supervisor in the daily project log. Inspection, necessary repairs and documenting is required daily, including days when no Phase IIB or IIC work or support activities are scheduled.
  5. A four (4) foot high construction fence with appropriate signage in compliance with Section 7.4© shall be constructed at a minimum of ten (10) feet from the end of the exhaust duct tube, or bank of duct tubes, to surround and control this area from public access. For ground level exhaust duct terminations at the immediate exterior of the building/structure, the fence shall be installed at the tube discharge location.
- L. Exhaust Location.** The exhaust shall be vented to the outside of the building or structure, to a controllable area away from public access. Each negative pressure ventilation unit exhaust duct shall not terminate less than fifteen (15) feet from a receptor or adversely affect the air intake of any building or structure. If the exhaust duct termination location for this Section cannot be met due to allowable space restrictions or the regulated abatement work area being located above the ground floor, the exhaust shall terminate at the exterior of the building or structure, and all receptors less than fifteen (15) feet from the exterior exhaust duct termination location shall be plasticized with two

(2) layers of at least six (6) mil polyethylene. Exhaust tubes may be grouped together in banks of no more than five (5) tubes, with each tube exhausting separately and the bank of tubes terminating together at the same controlled area.

- M. Exception.** HEPA-filtered vacuums used to exhaust Minor size tent enclosure regulated abatement work areas, do not require exhausting to the exterior of the building/structure.

### **3.10 EXEMPTION FROM VENTILATION AND USE OF NEGATIVE PRESSURE EQUIPMENT.**

- A. The use of negative pressure air equipment is not required for the following:
1. OSHA Class II non-friable ACM exterior projects;
  2. Asbestos projects where enclosures (i.e. hard walls, tents, etc.) are not required.
  3. Controlled demolition asbestos abatement projects. (see Section 56-11.5) (2) This exemption does not relieve the asbestos abatement contractor from the negative pressure equipment requirements on other portions of the same project that require the use of negative pressure equipment.

### **3.11 WORK AREA ENTRY AND EXIT PROCEDURES.**

- A. The following procedures shall be followed throughout the asbestos abatement project until satisfactory clearance air-sampling results have been achieved:
1. **Entry to the Work Area.** All persons shall enter the regulated abatement work area through the personal decontamination system enclosure, or through an airlock when used with an approved remote decontamination unit.
    - i. **Entry/Exit Log.** All persons who enter the regulated abatement work area or enclosure shall sign the entry/exit log, located in the clean room, upon every entry and exit.
  - a. **Knowledge of Procedures.** All persons, before entering the regulated abatement work area or enclosure, shall read and be familiar with all posted regulations, personal protection requirements, including regulated abatement work area entry and exit procedures and emergency procedures. The entry/exit log headings shall indicate, and the signatures shall be used to acknowledge that these have been reviewed and understood by all persons prior to entry.
  - b. **Personal Protective Equipment.** All persons shall proceed first to the clean room, remove all street clothing, store these items in lockers and don personal protective equipment as appropriate for the abatement work area. Two (2) layers of protective clothing shall be donned for entry to regulated abatement work areas from remote personal decontamination systems. All authorized visitors shall also don NIOSH-approved respiratory protection for work areas with negative air established. Respirators and personal protective equipment shall be utilized by each authorized visitor for each separate entry into the regulated abatement work area. Respirators shall be inspected prior to each use and tested for proper seal using positive and negative pressure fit checks.

- c. **Tools.** Persons wearing designated personal protective equipment shall proceed from the clean room through the shower room to the equipment room, where necessary tools are collected and any additional clothing shall be donned, before entry into the regulated abatement work area.
- B. All persons shall exit the regulated abatement work area through the personal decontamination system enclosure, or through an airlock when used with an approved remote decontamination unit.
- C. Before leaving the regulated abatement work area, all persons shall remove gross contamination from the outside of respirators and protective clothing by HEPA vacuuming, or wet cleaning.
- D. All persons shall exit the regulated abatement work area through the personal decontamination system enclosure, or through an airlock when used with an approved remote decontamination unit, except in case of an emergency, when an emergency exit or other means of escape may be used.
- E. **Utilizing Remote Decontamination Systems.** If at any time a person has to travel through an uncontaminated area to access the personal or waste decontamination enclosure system, the person shall HEPA vacuum and/or wet wipe his/her outer protective clothing while in the regulated abatement work area, then proceed into the airlock where he/she shall remove his/her outer clothing and don a clean set of protective clothing. He/she may then proceed to the personal or waste decontamination enclosure along a designated pathway. The walkway from the regulated abatement work area to the decontamination system shall be cordoned off to delineate it from public areas, as per Section 56-7.5(d)(4).
- F. Persons shall proceed to the equipment room where coveralls, head covering, foot covering and gloves shall be removed. Disposable clothing shall be deposited into labeled containers for disposal. Reusable contaminated clothing, footwear, head covering and gloves shall be stored in the equipment room when not being used in the regulated abatement work area. Respirators shall not be removed during this process.
- G. Still wearing respirators, persons shall proceed to the shower area, clean the outside of the respirator and the exposed face area under running water prior to removal of the respirator, and fully and vigorously shower and shampoo to remove residual asbestos contamination. Respirators shall be washed thoroughly with soap and water. Some types of respirators shall require slight modifications to these procedures. An airline respirator with a HEPA-filtered disconnect protection shall be disconnected in the equipment room and worn into the shower. A powered air-purifying respirator facepiece shall be disconnected from the filter/power pack assembly prior to entering the shower.
- H. After showering and drying, all persons shall proceed to the clean room and shall don either street clothing, if exiting the enclosure, or clean personal protective equipment if returning to another regulated abatement work area.

### 3.12 WORK AREA PREPARATION-

- A. Shut down and lock out the building heating, ventilating, and air conditioning and electrical systems. Provide temporary electric power and lighting as specified herein.
- B. Movable objects within the regulated abatement work area shall be pre-cleaned using HEPA-filtered vacuum equipment and/or wet cleaning, and such objects shall be removed from the regulated abatement work area to an uncontaminated location. Upholstered furniture and drapes shall be HEPA

vacuumed twice before removal from the regulated abatement work area. Carpeting shall be HEPA-vacuumed twice and cleaned before removal from the regulated abatement work area. If disposed of as asbestos-contaminated waste material, cleaning of carpeting is not required. If carpeting is left in place, it shall be covered with three-eighths (3/8) inch thick plywood sheathing prior to required plasticizing.

- C. Fixed objects and other items which are to remain within the regulated abatement work area shall be pre-cleaned using HEPA-filtered vacuum equipment and/or wet cleaning methods. Such objects and items shall be enclosed with two (2) layers of at least six (6) mil fire retardant plastic sheeting and sealed airtight with duct tape.
- D. The regulated abatement work area shall be cleaned using HEPA filtered vacuum equipment or wet cleaning methods or both. Methods that raise dust, such as sweeping or vacuuming with non HEPA-filtered equipment shall be prohibited. ACM, PACM or asbestos material shall not be disturbed during pre-cleaning. Pre-cleaning is intended for preparation work, not gross cleaning of visible asbestos debris such as disturbed ACM, PACM or asbestos material on floors or other work area surfaces. Pre-cleaning shall be performed in the following order. (1) Locations in which critical barriers and isolation barriers are to be installed shall be cleaned first using a HEPA-filtered vacuum and wet cleaning methods before the barriers are installed. After the critical barriers and isolation barriers are installed, the negative air ventilation units shall be started. Once the negative air ventilation units are operational, the remainder of the pre-cleaning shall take place and area plasticization shall begin.
- E. Critical barriers shall be constructed to seal off all openings and penetrations to the regulated abatement work area including, but not limited to, operable windows and skylights, doorways and corridors (which shall not be used for passage), ducts, grills, diffusers, HVAC system seams, and any other penetrations to surfaces within the regulated abatement work area. Critical barriers shall be constructed using two (2) independent layers of at least six (6) mil fire-retardant plastic sheeting with each layer sealed separately with duct tape. Caulk and fire-retardant expandable foam may be used to seal small openings or penetrations. Doorways and corridors, which shall not be used for passage during the asbestos project, shall also be sealed.
- F. Temporary hard-wall barriers to complete the containment enclosure and establish the asbestos project regulated abatement work area shall be constructed using the following framing, sheathing, sealing and plasticizing criteria:

(1) **Framing.** Isolation barrier partitions shall be constructed of wood or metal framing in all openings larger than thirty-two (32) square feet, except that where any one dimension is one

foot or less, framing is not required. Existing walls or framing may be used to support isolation barrier partition framing and sheathing.

(2) **Sheathing.** A plywood or oriented strand board (OSB) sheathing material of at least 3/8-inch thickness shall be fastened to the regulated abatement work area side of the barrier partition.

(3) **Sealing of Isolation Barriers.** The edges of the isolation barrier partition shall be sealed at the floor, ceiling, walls and fixtures using caulk, fire retardant expandable foam or duct tape to form an airtight seal. The seams of the partition sheathing shall also be sealed airtight using these techniques.

- (4) **Plasticizing Isolation Barriers.** The regulated abatement work area side of the isolation barrier partition shall be covered with two (2) layers of, at a minimum, six (6) mil fire-retardant plastic sheeting with staggered joints and sealed airtight.
- G. After critical barriers and isolation barriers are in place, mounted objects shall be removed and HEPA-vacuumed or wet wiped or both. Localized HEPA-filtered vacuum equipment shall be used during mounted object removal to reduce potential asbestos dispersal.
- H. Elevators running through the regulated abatement work area shall be shut down except as noted in this Subdivision:
1. Isolation Detail. In projects where the elevator cannot be shut down, the hoistway door frames shall be enclosed with nominal 2" x 4" framing, 16 inch on center, covered with 3/8-inch thickness plywood or OSB sheathing, and caulked or duct taped airtight at all seams. The enclosures shall be covered with two (2) seamless layers of at least six (6) mil plastic sheeting duct taped and sealed airtight. A final larger layer of at least six (6) mil plastic sheeting shall be duct taped and sealed airtight, but with slack, forming a larger perimeter diaphragm to sense air movement caused by elevator operation.
  2. Elevator Shaft Ports. Elevator shaft ports for pressure equalization when within the regulated abatement work area, shall be vented to the outside or non-work areas using oversized solid-walled ducts or chambers constructed with 3/8-inch thickness plywood or OSB sheathing over nominal 2" x 4" framing, 16 inch on center. The joints shall be caulked and the ducts or chambers shall be sealed with two (2) layers of at least six (6) mil fire-retardant plastic sheeting and duct tape. The first layer of plastic sheeting shall be attached to the ducts or chambers using spray adhesive. This system shall be subjected to and pass a negative pressure test daily.
- 0I. All floor, wall and ceiling surfaces, except where abatement of ACM, PACM or asbestos material shall be performed on those specific surfaces, shall be covered with two (2) layers of, at a minimum, six (6) mil fire-retardant plastic sheeting. The floor shall be plasticized first, and its plastic sheeting shall extend up the walls a distance of at least twelve (12) inches on all sides. The walls shall then be plasticized by applying plastic sheeting from the ceiling to the floor, overlapping the floor sheeting by at least twelve (12) inches. Next, the ceiling shall be plasticized overlapping the walls by at least twelve (12) inches, to form a secure airtight seam. This process shall be repeated for the second layer of plastic sheeting for the floor, walls and ceiling. All seams within a layer shall be separated by a distance of at least six (6) feet and sealed airtight with duct tape. All seams between layers shall be staggered at least two (2) feet.
- J. Where Allowed, negative pressure tent enclosures are allowed to be utilized for gross abatement of any quantity interior and exterior non-friable ACM or asbestos material, glovebag abatement of any quantity friable TSI, or gross abatement of Minor and Small quantities of friable ACM, PACM or asbestos material. For tent enclosures with gross abatement of friable materials, attached (contiguous) decontamination system enclosures shall be constructed, maintained and utilized as per this Part. Minor size tent enclosure work areas shall at a minimum have decontamination areas installed and utilized, as per the requirements of Section 56-11.3.
- K. Unless otherwise specified for removal, the Contractor shall either protect all fiberglass insulation on piping, ductwork, tanks, etc. in the Work Area using two layers of six mil polyethylene or remove the insulation as asbestos containing waste. If the Contractor elects to remove the fiberglass insulation, he shall be responsible for re-insulation if re-insulation of removed ACM is part of the Contract or Project.

### 3.13 HEATING, VENTILATION, AND AIR CONDITIONING (HVAC) SYSTEMS

A. HVAC systems shall be isolated from the regulated abatement work area. Acceptable means of HVAC system isolation include:

1. **Shutdown and Isolation.** Shutdown and isolation of HVAC systems to prevent contamination and asbestos dispersal to other areas of the building or structure.
2. **Local Isolation.** Local isolation and provision for temporary HVAC.
3. **Positive Pressurization.** Positive pressurization of the HVAC system.

- a. Positive pressurization shall be restricted to circumstances where HVAC must service the remainder of the building or structure and the HVAC equipment is in the regulated abatement work area or the ducts run through the regulated abatement work area. The appropriate HVAC duct and plenum outlets, inlets and exhaust dampers shall be sealed with caulking and a minimum 3/8-inch thickness plywood, or oriented strand board, or sufficient gauge sheet metal, covered with a double layer of at least six (6) mil fireretardant plastic sheeting and duct taped airtight. The HVAC duct and plenum joints shall be duct taped airtight. The mixing and balancing damper positions shall be altered and the return fan(s) shall be shut down to produce the required positive pressures.
- b. Project phasing, climate conditions, load conditions and HVAC equipment limitations and controls shall be considered when this alternate procedure is evaluated. Aerodynamics in the duct system, particularly spurs or trunks, shall be considered and, if necessary, the ducts or dampers shall be altered or removed to prevent loss of positive pressure in any part of the system. Precautions shall be taken during abatement activities to ensure that the ducts, seals and static pressure lines are not damaged.
- c. The presence of positive pressure shall be demonstrated daily by testing, including days when no Phase II work or support activities are scheduled, and the results must be noted in the asbestos abatement contractor supervisor's daily project log. Air sampling in occupied, downstream, non-work areas shall be performed on a daily basis as per the requirements of Section 56-7.1(b)(1) of this Subpart, except days when there are no Phase IIA, IIB, or IIC activities. Positive pressure verification shall be done on a continuous basis. The differential pressure shall be easily verifiable by use of a leak free, rigid static pressure taps, static lines on the supply and return ducts and static lines originating in the regulated abatement work area, adjacent areas or downstream non-work areas.

B. Potentially contaminated HVAC filters in existing building/structure HVAC systems shall be handled and disposed of as asbestos contaminated waste material. The ducts and filter assembly shall be wet cleaned and HEPA-vacuumed where system air samples or bulk samples indicate asbestos

contamination within the interior of the HVAC ducts. Existing building/structure HVAC system filters shall be treated as potentially contaminated for all friable OSHA Class I and Class II asbestos projects, and shall be removed and disposed of by the asbestos abatement contractor after the affected filters are identified by the building/structure owner's HVAC contractor or maintenance personnel. The building owner or their agent shall supply appropriate replacement HVAC system filters to the asbestos abatement contractor during HVAC system filter removal and replacement.

### **3.14 REMOVAL OF ASBESTOS CONTAINING MATERIALS**

- A. No dry removal or dry disturbance of asbestos material shall be permitted. Asbestos-containing materials shall be removed in accordance with the Contract Documents and the approved Asbestos Work Plan.
- B. The asbestos material shall be adequately wetted with amended water. Sufficient time shall be allowed for penetration to occur prior to abatement activities. All friable asbestos materials shall be thoroughly saturated. All non-hygroscopic (material that resists wetting) asbestos material shall be thoroughly wetted, prior to and during abatement.
- C. Only one type of asbestos containing material shall be abated at a time within an enclosure. Prior to the abatement of another type of asbestos containing material, the area shall be cleaned. (See Section 8.6 - Multiple Abatement within a Single Regulated Abatement Work Area)
- D. ACM, PACM and asbestos material, on detachment from the substrate, shall be directly bagged or dropped into a flexible catch basin and subsequently bagged or containerized. Materials removed in negative pressure tent enclosure work areas shall be bagged or containerized immediately upon detachment. Additional amended water shall be added as necessary to the waste bags/containers to ensure that all waste remains adequately wet within the bag/container.
- E. Where ACM, PACM or asbestos material was removed, any exposed edges of material that remain shall be sealed with wettable cloth or otherwise encapsulated with a suitable non-asbestos material, prior to commencement of final cleaning and collection of clearance air samples.
- F. Exterior Chutes: For asbestos material lowered or conveyed greater than ten (10) feet in height, dust tight, enclosed, inclined chutes shall be used as follows: (1) The upper end of the chute shall be furnished with a hinged lid to be closed when a chute is not being used, (2) The chute shall be dust tight along its lateral perimeter and at the terminal connection to a dumpster or container with a hard wall and a hard top.
- G. Handling Large Components: Large components, removed intact, shall be wrapped in two (2) layers of at least six (6) mil plastic sheeting secured and made air tight with duct tape.
- H. Asbestos waste material with sharp edged components that may tear or damage the plastic bags or sheeting shall be placed in a poly lined hard wall container or a rip proof bag then double bagged or wrapped and sealed airtight.
- I. If a regulated abatement work area enclosure of any type, including a negative pressure tent enclosure, fails or loses its integrity, the required procedures of Section 56-8.2(g) shall be followed.

### **3.15 WASTE CLEAN-UP PROCEDURES.**

- A. All accumulations of asbestos waste material shall be adequately wetted and containerized using HEPA-vacuums or rubber or plastic dustpans, squeegees or shovels. Metal shovels shall not be used to pick up or move waste. HEPA-vacuums shall be used to clean all surfaces after gross cleanup.

- B. All waste generated shall be bagged, wrapped or containerized immediately upon removal. Cleanup of accumulations of loose debris/waste material shall be performed whenever enough loose debris/waste material has been removed to fill a single leak-tight container appropriate for the type of ACM being removed. Cleanup of all remaining waste generated shall be performed at least once prior to close of each work-shift. All waste material shall be kept adequately wet at all times.
- C. Accumulations of dust or debris shall be cleaned off all surfaces on a daily basis using HEPA-vacuum or wet-cleaning methods or both.
- D. Decontamination system enclosures shall be HEPA-vacuumed or wet-cleaned or both at the end of each work-shift.
- E. The regulated abatement work area, holding area, waste trailer and hardtop dumpster areas must be kept free of un-containerized asbestos waste/debris at all times.

### **3.16 MULTIPLE ABATEMENT WITHIN A SINGLE REGULATED ABATEMENT WORK AREA.**

- A. Simultaneous or concurrent abatement of multiple types of ACM within a single regulated abatement work area shall not be allowed, unless the multiple types of ACM are part of the same system (e.g. floor tile/cove base and mastics, or ceiling/wall tile and mastic). Simultaneous removals are allowed on a project provided they are within different regulated abatement work areas.
- B. When multiple types of abatement work are done in a common regulated abatement work area or enclosure, a sequential order of abatement is required as outlined in ICR 56 –8.6
- C. On completion of each type of asbestos abatement within these work area enclosures, a complete single clean of all surfaces in the entire area – ceiling, walls and floors - shall be performed by HEPA vacuuming and wet wiping. No final clearance air samples shall be required for each individual type of material abatement, until the last type of ACM, PACM or asbestos material is abated. Each intermediate completion shall include a visual inspection for completeness by the asbestos abatement contractor's supervisor. Results of the visual inspection and time of intermediate completion shall be documented by the asbestos abatement contractor's supervisor in the daily project log.
- D. A complete single clean of all surfaces in the entire area – ceiling, walls and floors, followed by a visual inspection as described in Subpart 56-9 shall be performed by HEPA vacuuming and wet wiping, after all abatement is complete.
- E. After the final cleaning and visual inspection requirements are completed and the final settling/drying period is observed, prior to dismantling the regulated abatement work area, Phase IIC final clearance air samples shall be collected and satisfactory clearance air results obtained as per Section ICR 56 -9.2.

### **3.17 EQUIPMENT AND WASTE CONTAINER DECONTAMINATION AND REMOVAL**

- A. After ACM, PACM, asbestos material and debris is bagged, wrapped, or containerized, waste transfer from the regulated abatement work area as per this Section, shall occur when no gross removal is taking place.



- B. External surfaces of contaminated bags/containers and equipment shall be cleaned by wet wiping or HEPA-vacuumping or both in the regulated abatement work area before moving such items into the waste decontamination system washroom by persons assigned to this duty.
- C. All bagged/containerized contaminated items and asbestos waste shall be passed into the washroom during waste transfer operations. Workers from uncontaminated areas in full protective clothing and appropriate respiratory protection shall enter the washroom and place the appropriate supply of specified clean waste bags/containers within the washroom. One team of workers shall be stationed in the washroom for bag/container cleaning and additional containerization as necessary. The workers shall ensure all curtained doorways are closed during the waste container transfer procedure and that all bags/containers are sealed properly before removing for transport and disposal.
- D. Once in the waste decontamination system, external surfaces of the contaminated bags/containers and equipment shall be cleaned an additional time by wet cleaning in the washroom.
- E. Once the additional cleaning is completed and the cleaned bags/containers of asbestos waste are dried of any excessive pooled or beaded liquid, they shall be placed in a clean uncontaminated plastic bag or wrapped in sheeting (except for non-porous drums which shall be washed and dried only), as the items physical characteristics demand, and sealed airtight. When the bags/containers are moved to the holding area, lockable trailer, or lockable hardtop dumpster, the bags/containers shall be appropriately labeled with the date they are moved from the waste decontamination system marked on the container in waterproof markings. Caution labels as per the requirements of current EPA NESHAP regulations, including the generator's name and location generated shall also be affixed at this time.
- F. The equipment and cleaned/containerized waste shall be moved into the airlock, or for Small projects to the clean room, that leads from the washroom. The washroom workers shall not enter this airlock, Small project clean room or the regulated abatement work area until waste transfer is finished for that transfer period. Once waste transfer is complete, the washroom workers shall proceed to the regulated abatement work area and then to the personal decontamination system, or immediately to the remote personal decontamination system.
- G. Bags/containers and equipment shall be moved from the airlock and into the holding area, or directly from the holding area to the lockable trailer or lockable hardtop dumpster by persons attired in clean personal protective equipment who have entered from uncontaminated areas. Asbestos waste may stay in the holding area no longer than one (1) week or in a lockable trailer or lockable hard top dumpster until filled, but in no instance longer than ten (10) calendar days after successful completion of Phase II C for all regulated abatement work areas at the site.
- H. The cleaned containers of asbestos waste and equipment shall not be stored in the clean room but shall be placed in holding carts adjacent to but outside of the clean room, after passing through the decontamination unit. The carts may be used for temporary storage adjacent to the clean room until the end of the work shift.
- I. The carts shall be watertight and have doors or tops that shall be closed and secured. The carts shall be HEPA-vacuumed and wet cleaned at least once a day.
- J. Waste transport trailers and dumpsters used to transport RACM waste, shall be hard topped, lockable and lined with two (2) layers of six (6) mil fire-retardant polyethylene. Prior to transport from the work site, all waste trailers and dumpsters shall be sealed to ensure air, dust and watertight integrity, utilizing six (6) mil plastic, duct tape and expandable foam sealant as necessary. The waste transporter is responsible for cleaning/decontamination of waste trailers or dumpsters, once the waste has been properly disposed of at the appropriately licensed and permitted landfill facility. Waste haulers (truck drivers) accessing the work area to remove waste trailers/dumpsters do not require

certification as asbestos handlers. Waste hauler truck operators shall be allowed within the regulated work area for loading of waste and shall remain in their vehicle with the windows up and the ventilation system off while in the work area.

- K. The entrance to and exit from the waste decontamination system enclosure(s) shall be secured to prevent unauthorized entry. Signs per Section 56-7.4 shall be posted at the entrance to the decontamination units.

### **3.18 FINAL CLEANING PROCEDURES.**

- A. The negative pressure ventilation units shall remain in continuous operation during implementation of including observance of settling/waiting periods and drying times.
- B. All surfaces of the regulated abatement work area shall be first wet-cleaned using rags, mops and sponges. For collecting excess liquid and wet debris, a wet purpose HEPA filtered shop vacuum may be used and shall be emptied prior to removal from the regulated abatement work area. When the first cleaning has been completed, a thin coat of a lockdown encapsulant agent shall be applied to all surfaces within the regulated abatement work area which were not the subject of removal or abatement. In no event shall lockdown encapsulant be applied to any surface which was the subject of removal or other abatement response activity, prior to obtaining satisfactory clearance air results for the regulated abatement work area. Once the lockdown encapsulant has been applied, and the appropriate waiting/settling or drying time requirements of this Subpart have been met, the cleaned, exposed top barrier layer of plastic sheeting shall then be removed from walls, ceilings and floors. Windows, doors, HVAC system vents and other openings shall remain sealed. Decontamination system enclosures shall remain in place and shall continue to be utilized. (c)
- C. After the top layer of plastic sheeting has been removed, all objects and surfaces in the regulated abatement work area shall be HEPA-vacuumed and then wet-cleaned. After the second cleaning and waiting/settling or drying time requirements of this Subpart, then the remaining bottom layer of plastic sheeting on walls, ceilings and floors shall be removed. All windows, doors, HVAC system vents and all other openings shall remain sealed.
- D. After the bottom layer of plastic sheeting has been removed, all objects and surfaces in the regulated abatement work area shall be HEPA-vacuumed and then wet-cleaned. After the final cleaning is complete, clearance air sampling shall not commence until the appropriate waiting/settling or drying time requirements of this Subpart have elapsed and a visual inspection has been completed by the project monitor to confirm that the scope of abatement work for the asbestos project is complete, and no visible asbestos debris/residue, pools of liquid, or condensation remain. The asbestos abatement contractor supervisor must complete a satisfactory visual inspection for completeness of abatement and cleaning.
- E. When the regulated abatement work area is not required to be plasticized, or when a tent enclosure unit is used, one thorough final cleaning followed by the observance of the appropriate waiting/settling or drying time requirement of this Subpart shall be required. For regulated abatement work areas where one (1) layer of plastic sheeting is allowed, such as the use of spray plastic or pre-demolition asbestos projects, two (2) cleanings (first and final), each followed by observance of the appropriate waiting/settling or drying time requirements of this Subpart is required. Cleanings shall consist of all surfaces in the regulated abatement work area being HEPA vacuumed first and then wet-cleaned.

- F. For sequential removals as per Section 56-8.6(b), the most stringent waiting/settling/drying time shall be observed. The following waiting and drying times per material abated shall be observed for each stage of cleaning as per this Subpart:
1. fireproofing, plaster, TSI and other friable materials - 12 hours
  2. abrasive removals of floor tile/mastic with machinery - 12 hours (such as a bead blaster, grit blaster, etc.)
  3. manual removal of floor tiles/mastic - 4 hours
  4. manual abatement of interior non-friable materials - 4 hours
  5. Incidental disturbance asbestos project - 4 hours
  6. tent with glovebag abatement of TSI - 2 hours
  7. intact transite panel removals indoors - 2 hours
  8. Exterior non-friable ACM abatement without negative – None pressure enclosure
- G. All equipment (except negative air ventilation system) and tools shall be removed from the regulated abatement work area and properly decontaminated as per this Part, prior to commencement of clearance air sampling.

### **3.19 DISMANTLING OF REGULATED ABATEMENT WORK AREA.**

- A. Each enclosure and airlock shall not be dismantled until clearance air sampling has been performed and satisfactory results obtained. The plastic sheeting which formed the tent, airlock, and the contents thereof, shall be fully collapsed, starting from the top and working downward. The tent and contents shall be placed in at least a six (6) mil plastic bag or hardwall container, sealed airtight with duct tape and removed for disposal. The plastic sheeting shall be treated as contaminated material and properly disposed of as asbestos waste.
- B. All remaining tools and equipment shall be removed from the regulated abatement work area after proper decontamination as per this Part.
- C. Once the asbestos abatement contractor receives satisfactory clearance air sample results, or an acceptable visual inspection for an exempt regulated abatement work area, and all tools and equipment are removed, all remaining polyethylene, duct tape, expandable foam and other barrier materials shall be bagged, wrapped or containerized and labeled as asbestos waste. temporary hardwall barriers must be dismantled and removed from the site. If any debris/residue is observed behind barriers, it shall be removed and bagged/containerized followed by HEPA-vacuuming and wet cleaning of the surfaces that were hidden behind the barrier. All waste generated shall be removed to the holding area, lockable trailer or lockable hardtop dumpster as per Section 8.9 of this Part. The asbestos abatement contractor's supervisor shall then conduct a final inspection of the regulated abatement work area to certify that the abatement work is complete and no debris/residue remains. The results of the final inspection for each regulated abatement work area shall be noted in the asbestos abatement contractor supervisor's daily project log.
- D. After all other remaining isolation barriers, tools and equipment have been removed from the regulated abatement work area, the remaining decontamination enclosure for the regulated abatement work area must be dismantled and removed from the work site. All plastic sheeting shall be removed and disposed of as asbestos waste.

### 3.20 GLOVEBAG PROCEDURES

- A. Glovebags are allowed to be utilized for abatement of pipe or duct insulation within negative pressurized regulated abatement work area enclosures. Glovebags may only be used on piping and ducts up to 150 degrees Fahrenheit.
- B. When abating pipe or duct insulation, the pipe or duct insulation diameter worked shall not exceed one half the bag working length.
- C. Duct tape shall be placed securely around the area of abatement to form a mooth seal. The glovebag shall then be secured to the duct tape and sealed airtight.
- D. After placement, each glovebag shall be subjected to and pass a smoke test as follows:
  - 1. Smoke testing should not be completed using a positive pressure test. The glovebag, once secured in place, should be placed under negative pressure, utilizing the HEPA-vacuum, and a smoke tube should be aspirated to direct smoke at all seals and seams from outside the glovebag.
  - 2. If there are any leaks, they will be detected by the smoke entering the bag. All leaks shall be duct taped airtight.
- E. If material adjacent to the work section is damaged, or if it terminates, is jointed or contains an irregularity adjacent to the work section, the material shall be wrapped in at least six (6) mil fire-retardant plastic sheeting and sealed airtight with duct tape.
- F. After the asbestos material has been stripped, the surface from which it has been removed shall be wetted with amended water and scrubbed with a brush or abrasive pad to remove all visible asbestos material. The surfaces from which it has been removed, the interior of the bag, the affected area and the tools shall then be thoroughly wetted with amended water.
- G. When abating pipe insulation, any pipe insulation ends created shall be sealed with wettable cloth or otherwise encapsulated with a non-asbestos product.
- H. A HEPA-vacuum shall be used to collapse the glovebag.
- I. With the glovebag collapsed and the asbestos material in the bottom of the bag, twist the bag several times and duct tape the twist to seal that section. The tool pouch shall be separated from the bag by twisting it several times, taping the twist and thus sealing the pouch. Alternately, the tools may be segregated using one or both glove inserts and pulling the tools through, thus turning the glove inside out. The glove(s) shall then be twisted several times, duct taped and thus sealed.
- J. The glovebag shall be tied off to contain the asbestos material prior to the glovebag being detached from the area where the asbestos was removed within the bag.
- K. The sealed glovebag shall be placed into at least a six (6) mil plastic bag, sealed airtight and transferred from the regulated abatement work area as per Section 56-8.9, for disposal as asbestos waste.

- L. The requirements of Section 56-8.2(g) shall be complied with in the event of glovebag losing seal or integrity.

### **3.21 RESTORATION OF UTILITIES, FIRESTOPPING, AND FINISHES**

- A. After final clearance remove locks and restore electrical and HVAC systems. All temporary power shall be disconnected, power lockouts removed and power restored. All temporary plumbing shall be removed.
- B. Finishes damaged by asbestos abatement activities including, but not limited to, plaster/paint damage due to duct tape and spray adhesives, and floor tile lifted due to wet or humid conditions, shall be restored prior to final payment.
  - 1. Finishes unable to be restored shall be replaced under this Contract.
  - 2. All foam and expandable foam products and materials used to seal Work Area openings shall be completely removed upon completion of abatement activities.
- C. All penetrations (including, but not limited to, pipes, ducts, etc.) through fire rated construction shall be firestopped using materials and systems tested in accordance with ASTM E814 on Projects where re-insulation is part of the required work.

## **PART 4 DISPOSAL OF ASBESTOS WASTE**

### **4.01 APPLICABLE REGULATIONS**

- A. All asbestos waste shall be stored, transported and disposed of in accordance with the following regulations as a minimum:
  - 1. NYS DEC 6 NYRCC part 360 and 364
  - 2. US EPA NESHAPS 40 CFR 61
  - 3. US EPA Asbestos Waste Management Guidance EPA/530-SW85
  - 4. NYC Local Law 70/85 (for Projects located in New York City).

#### **4.02 FINAL WASTE REMOVAL FROM SITE REQUIREMENTS.**

- A. Satisfactory clearance air results must be obtained, for all non-exempt regulated abatement work areas, before final waste removal from the site may be completed as per this Subpart.
- B. All remaining tools and equipment shall be removed from the work site after proper decontamination.
- C. After all regulated abatement work areas for the asbestos project have been dismantled as per Section 56-9.3, any remaining remote decontamination enclosures must be dismantled and removed from the work site. All plastic sheeting shall be removed and disposed of as asbestos waste.
- D. All waste generated as part of the asbestos project shall be removed from the site within ten (10) calendar days after successful completion of all regulated abatement work areas at the site. All waste generated during the asbestos project shall be legally disposed of at an approved landfill facility. All generated waste removed from the site must be documented, accounted for and disposed of in compliance with the requirements of EPA NESHAP.

#### **4.03 TRANSPORTATION AND DISPOSAL SITE**

- A. The Contractor's Hauler and Disposal Site shall be approved by the Owner.
- B. The Contractor shall give twenty-four (24) hour notification prior to removing any waste from the site. Waste shall be removed from the site only during normal Working hours unless otherwise specified. No waste may be taken from the site unless the Environmental Consultant is present and authorizes the release of the waste as described herein.
- C. The Contractor shall have the Hauler provide the estimated date and time of arrival at the Disposal Site.
- D. Upon arrival at the Project Site, the Hauler must possess and present to the Environmental Consultant a valid New York State Department of Environmental Conservation Part 364 Asbestos Hauler's Permit. The Environmental Consultant may verify the authenticity of the hauler's permit with the proper authority.

- E. The Hauler, with the Contractor and the Environmental Consultant, shall inspect all material in the transport container prior to taking possession and signing the Asbestos Waste Manifests.
- F. Unless specifically approved by the Owner, the Contractor shall not permit any off-site transfers of the waste or allow the waste to be transported or combined with any other off-site asbestos material. The Hauler must travel directly to the disposal site with no unauthorized stops.

#### 4.04 WASTE STORAGE CONTAINERS

- A. All waste containers shall be fully enclosed and lockable (i.e. enclosed dumpster, trailer, etc.). No open containers will be permitted on-site (i.e. open dumpster with canvas cover, etc.) unless specifically permitted by a site specific variance.
- B. The Environmental Consultant shall verify that the waste storage container tags (license plates) match that listed on the New York State Department of Environmental Conservation Part 364 permit. Any container not listed on the permit shall be removed from the site immediately.
- C. The container shall be plasticized and sealed with a minimum of one (1) layer of 6 mil polyethylene on the sides and two (2) layers of 6 mil polyethylene on the floor. Once on site, it shall be kept locked at all times, except during load out.
- D. While on-site, the container shall be labeled with EPA Danger signage:

DANGER  
CONTAINS ASBESTOS FIBERS  
AVOID CREATING DUST  
CANCER AND LUNG DISEASE HAZARD

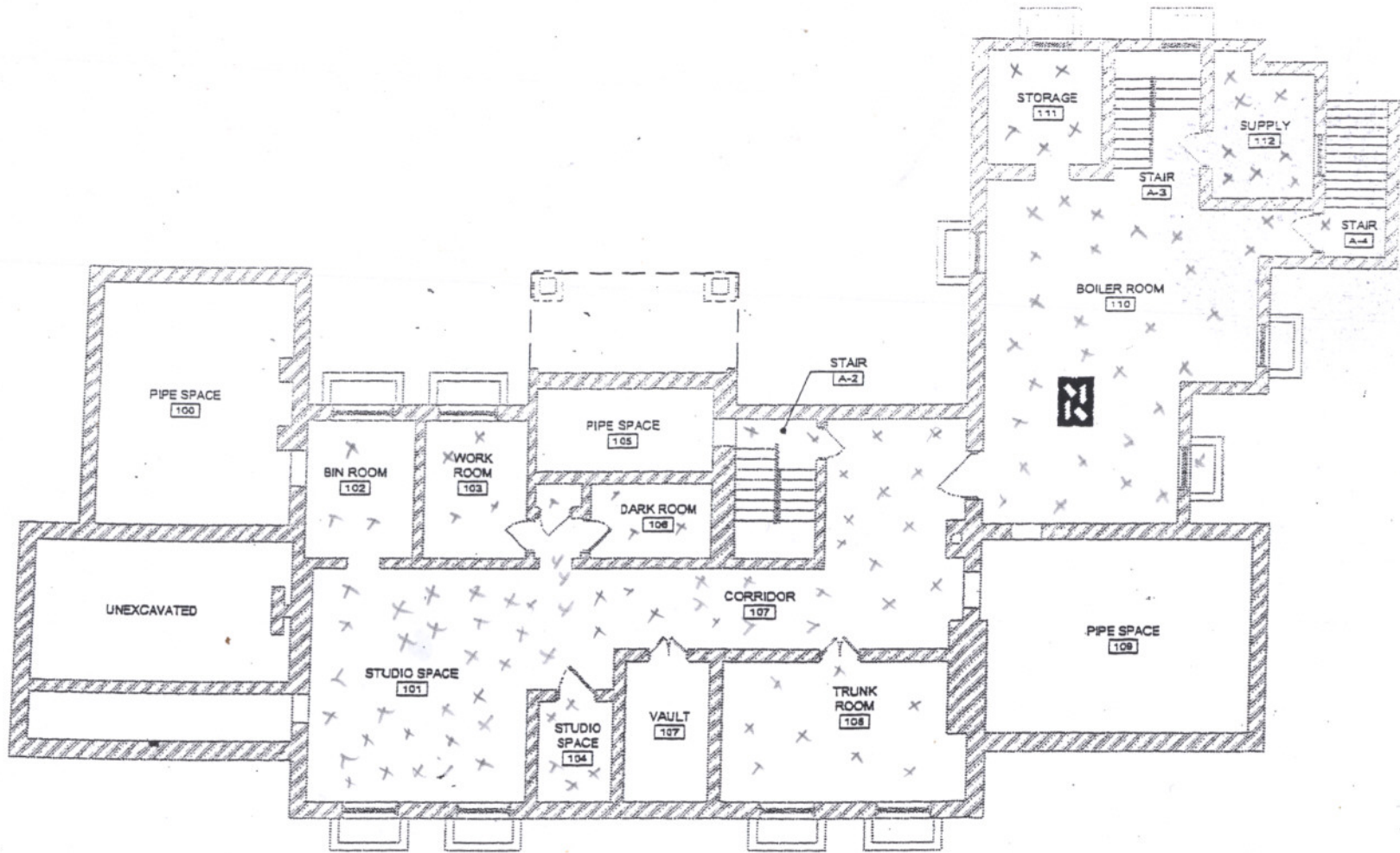
- E. The New York State Department of Environmental Conservation Asbestos Hauler's Permit number shall be stenciled on both sides and back of the container.
- F. The container is not permitted to be loaded unless it is properly plasticized, has the appropriate danger signage affixed, and has the permit number appropriately stenciled on the container.
- G. Before the container is removed from the Project Site for transportation to the Disposal Site, a seal will be placed on the door(s) of the container by the Environmental Consultant. The door(s) shall also be locked. The seals and locks shall be removed at the Disposal Site by the operator of the Disposal Facility and the seals shall be returned by the Disposal Facility to the Contractor.

- H. The Owner may initiate random checks at the Disposal Site to insure that the procedures outlined herein are complied with.

#### **4.05 HAULER'S ASBESTOS WASTE MANIFESTS**

- A. The Manifests shall have the appropriate signatures of the Environmental Consultant, the Contractor, and the Hauler representatives prior to any waste being removed from the site.
- B. The Contractor shall forward copies of all Waste Manifest to the Owner and Environmental Consultant within 14 days of the waste container being removed from the site. Failure to do so may result in payment being withheld from the Contractor.
- C. Originals of all waste shall be submitted by the Contractor to the Owner with the final close-out documentation.

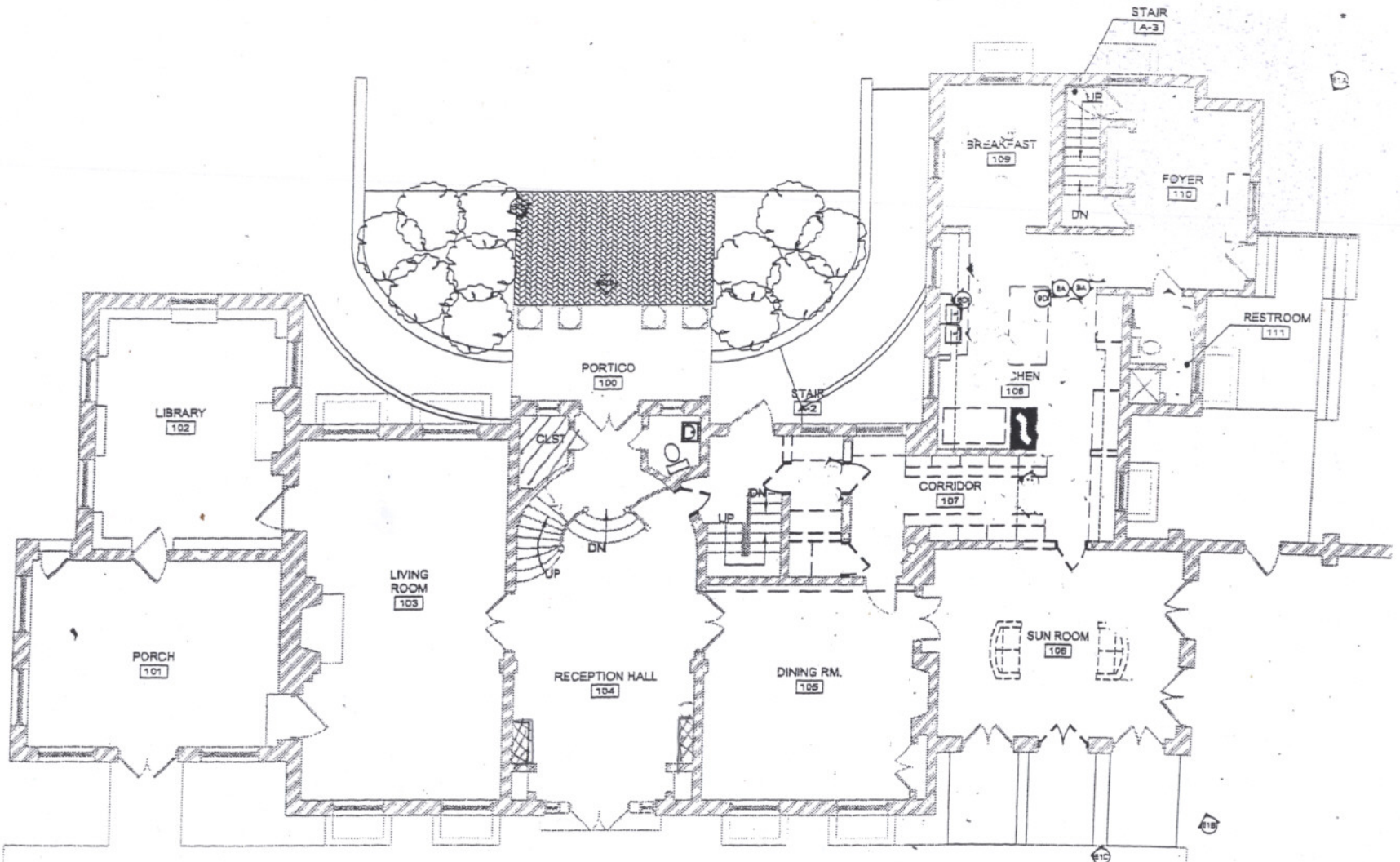




BASEMENT- ACM LOCATION

 PIPE INSULATION

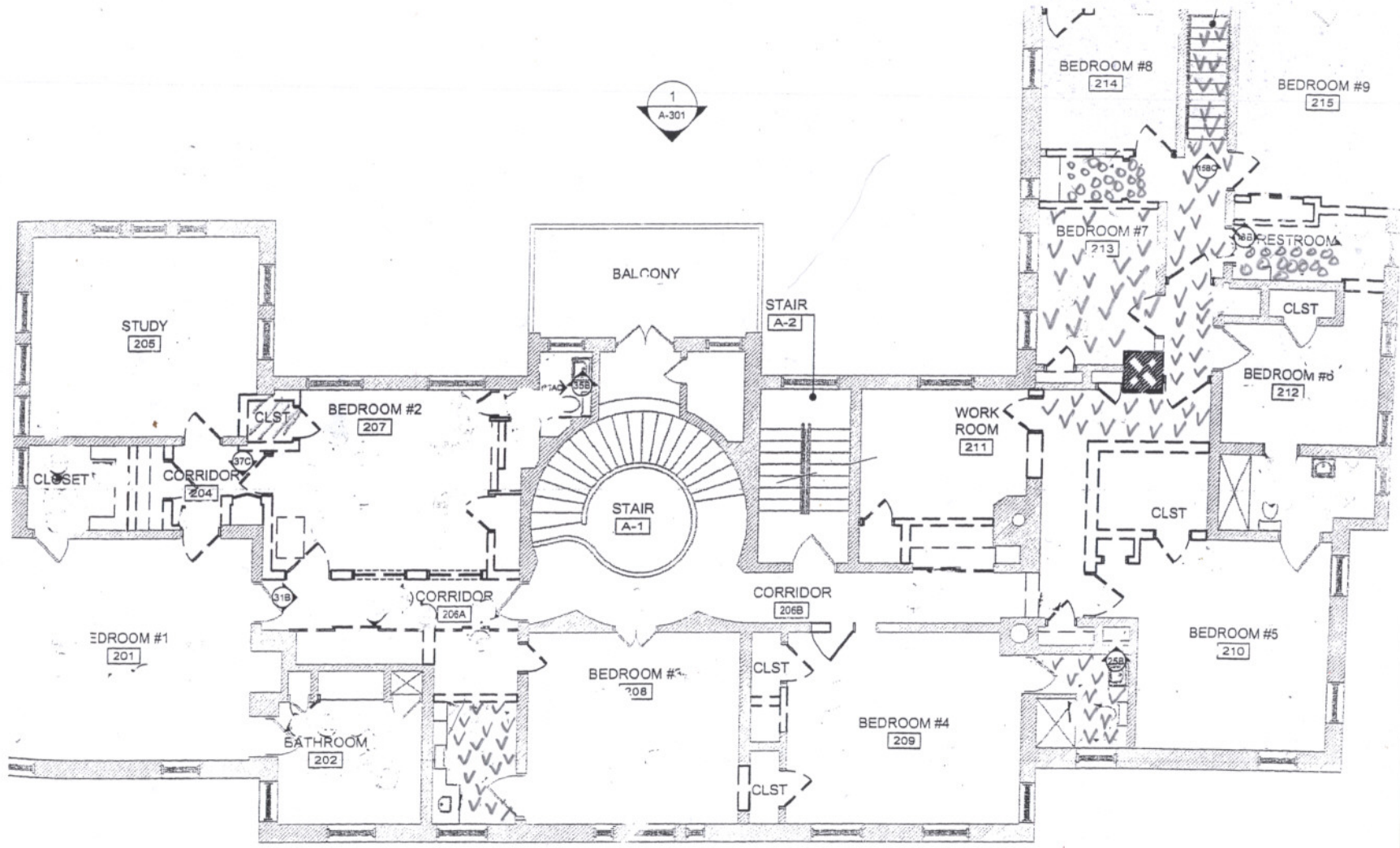
1 BASEMENT PHOTO KEY PLAN  
SCALE 1/8" = 1'-0"




1<sup>ST</sup> FLOOR - ACM LOCATION

□ NOCD  
 ▨ PAPER BEHIND RADIATOR

2<sup>ND</sup> FLOOR ACM LOCATION



2<sup>ND</sup> FLOOR

 12'x12" FLOOR TILE

 9'x9" FLOOR TILE